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| 09/980,010      | 11/30/2001  | Chiharu Nishizawa    | Q67460              | 4232             |

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EXAMINER

BISSETT, MELANIE D

ART UNIT PAPER NUMBER

1711

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/980,010

Applicant(s)

NISHIZAWA ET AL.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-9 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-9 and 12-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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1. The objection to the specification has been withdrawn. However, new rejections based on 35 USC 112 have been added. The rejections based on 35 USC 102 have been altered to reflect the amended claims.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 3-4, 6-9, and 12-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The independent claims have been amended to include the phrase "mixture consisting essentially of a polyurethane prepolymer..., a curing agent..., and a photochromic organic compound". However, the specification gives no guidance to exclude any materials from the polyurethane product. One skilled in the art reading the present specification would not know to additional materials from the composition. Thus, the "consisting essentially of" cited in the claims presents new matter.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 1, 3-4, 6-9, and 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claims 1 and 12 cite prepolymers having "an isocyanate on both ends" made by reacting a *di*isocyanate with a *poly*ol. The use of the language "both ends" indicates that the prepolymer would have only two ends; however, the reaction of a polyol encompasses prepolymers having more than two endgroups. The contradicting language renders the scope of the claims unclear, since it is not clear whether the applicant intends to claim a difunctional prepolymer or a general polyfunctional prepolymer.

7. Claims 16 and 17 cite "said mixture also contains". In this case, it is unclear whether the added limitations are intended to limit the reaction mixture of the prepolymer and curing agent or the reaction mixture forming the prepolymer. The term "mixture" has been used to represent multiple combinations in the independent claim.

8. Claim 3 cites that said polyurethane prepolymer is made from a prepolymer and a curing agent. It is unclear whether the applicant intends to claim that the prepolymer is made from an isocyanate and a polyol having the claimed molecular weights or whether the applicant intends to claim that the cured polyurethane is derived from the prepolymer and curing agent.

***Claim Rejections - 35 USC § 102***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1, 3, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ormsby et al. as evidenced by Bright.

11. Ormsby discloses a multilayer laminate structure including two clear substrates and an intermediate polyurethane layer (col. 3 lines 6-16). The polyurethane layer contains a photochromic dye, including spiropyrans and spirooxazines (col. 4 lines 3-12). The polyurethane layer is present between two transparent sheets and is prepared by reacting diisocyanates, diols, and a triol (example 1). The triol component serves to cure the polyurethane material due to its polyfunctionality. Because the claims are drawn to a product-by-process, materials made by different methods but forming the same material structure anticipate the present claims. Currently, the claims do not distinguish that the prepolymer and curing agent are made of different starting materials. Thus, it is the examiner's position that a polyurethane made by reacting two prepolymers of the same starting materials would be the same as a polyurethane made by reacting the same starting materials in situ. The Ormsby reference also demonstrates that a triol is used to obtain a cured polyurethane. Since the specification and claims cite the use of "polyol" reactants, it is the examiner's position that an added triol component would not be excluded by "consisting essentially of" language. It is the examiner's position that Ormsby's reaction product would be indistinguishable from that

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of the claimed polyurethane, where the same reactants are used for the prepolymer and curing agent and where an added curing agent is employed.

12. Regarding the claimed polycarbonate layers, Ormsby teaches the use of transparent CR 39 lens forms (col. 3 lines 43-61). Bright teaches that one skilled in the art would regard CR 39 as a polycarbonate structure (col. 2 lines 24-25).

13. Regarding the claimed molecular weights of the prepolymer and curing agents, it is the examiner's position that the polyurethanes of Ormsby's invention would inherently meet the limitation. Note that the claim is drawn to the cured product. When the same materials are used to obtain the prepolymer and curing agent, the initial molecular weights of the reactants are irrelevant to the cured product. Again, the material of Ormsby's invention would be indistinguishable from the applicant's claimed invention.

14. Regarding the claimed lens obtained by bending the claimed laminate, it is noted that this claim is written in product-by-process format. Ormsby teaches curved lenses laminated with polyurethane photochromic layers (col. 3 lines 43-61). It is the examiner's position that the curved lens formed by Ormsby's invention would be indistinguishable from one formed by bending a laminate product.

### ***Claim Rejections - 35 USC § 103***

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

16. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ormsby et al. as evidenced by Bright and in view of Linne.

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17. Ormsby applies as above, teaching the use of toluene diisocyanate and polyether polyols, but failing to teach the applicant's claimed combinations of MDI and polypropylene glycol or TDI and polypropylene glycol (col. 3 lines 39-42; examples). Linne teaches polyurethane compositions for sealing rigid plastic substrates, where the inventive polyurethanes have improved adhesion to the rigid substrates without the need for an intermediate adhesive layer (col. 33-46). The preferred rigid substrate includes polycarbonate (col. 2 lines 40-59). The reference teaches that MDI or TDI are preferred for the isocyanate component, while polypropylene glycol is preferred for the polyol (col. 3 lines 13-32). It is the examiner's position that it would have been prima facie obvious to use combinations of either MDI or TDI with polypropylene glycol in the polyurethane compositions of Ormsby to produce polyurethanes having improved adhesion to the polycarbonate substrates.

18. Claims 7-8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ormsby et al. as evidenced by Bright and in view of Perrott et al.

19. Ormsby et al. applies as above, teaching the use of a solvent to decrease viscosity of the composition but failing to teach the use of the applicant's claimed light stabilizers. Perrott teaches that the use of the claimed light stabilizers is conventional in photochromic compositions (abstract; col. 6 lines 1-5). The light stabilizers serve to stabilize the composition from ambient light. Since the Ormsby polyurethane compositions are required to be exposed to light to carry out the invention, it is the examiner's position that it would have been prima facie obvious to use the conventional

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light stabilizers taught in Perrott for their art-recognized use to stabilize the compositions upon exposure to light.

20. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ormsby et al. as evidenced by Bright and in view of Bae et al.

21. Ormsby teaches polycarbonate substrates for lens applications by the application of polyurethane compositions to CR-39. However, the reference does not specify the use of other polycarbonates, including those based on bisphenol A. Bae teaches that CR-39 and bisphenol-A polycarbonates are equally used in lens applications because of their improved impact resistance over glass (col. 1 lines 15-32). Thus, it is the examiner's position that it would have been prima facie obvious to use bisphenol-A substrates in Ormsby's invention to form an article having equally improved impact resistance.

### ***Response to Arguments***

22. In response to the applicant's arguments that the language "consisting essentially of" excludes added trifunctional polyols, it is noted that the claims and specification encompass the use of trifunctional polyols in the formation of both the prepolymer and the curing agent. Thus, it seems contradictory to assume that the use of a trifunctional polyol in the overall mixture would materially affect the composition in such a way that the invention is destroyed. The specification gives no guidance to



materials to be excluded from the compositions; thus, it is the examiner's position that the claims do not exclude such trifunctional polyols.

23. Regarding the applicant's argument that the examiner's diagram does not correctly represent the applicant's invention, it is the examiner's position that the claims still do not exclude trifunctional polyols. Thus, the diagram fits the applicant's invention where the same starting materials are used for the curing agent and prepolymer and where an additional curing agent has been employed.

24. In response to the applicant's arguments that the CR-39 material does not fit the definition of polycarbonate, it is the examiner's position that one skilled in the art would recognize CR-39 as such a material. The Bright reference has been presented to support this position, since the inventors recognize CR-39 as a polycarbonate. The structure contains carbonate functional groups within the polymer backbone as a repeated unit; thus, in the broadest interpretation of the claims, it is the examiner's position that the structure qualifies as a polycarbonate.

25. Regarding the applicant's arguments that it is more difficult to bend the material according to Ormsby's invention, it is the examiner's position that the end products would be indistinguishable. As set forth above, it is the examiner's position that the polyurethane of Ormsby is encompassed in the present claims, since the polyurethane would be indistinguishable from the claimed polyurethane. Ormsby teaches that polyurethane materials may be applied to curved lenses. The applicant has not shown that the *method of making* the products results in materially different products. First, the applicant has not shown that the prepolymer method using an added trimethylol

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propane and the same isocyanate/polyol reactants results in a different polyurethane than a polyurethane made by reacting the starting materials in situ. Second, the applicant has not shown that the method of bending the lens forms a different curved lens than one formed by applying the polyurethane to a curved lens.

26. The rejections based on Okoroafor have been withdrawn based on the applicant's amendment. However, it is the examiner's position that the specification does not support the "consisting essentially of" language. It is noted that the examiner will consider reinstating the rejections based on Okoroafor if the language is removed from the claims.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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